

US009408698B2

## (12) United States Patent

Miles et al.

(54) METHOD INCORPORATING
COMPUTER-IMPLEMENTED STEPS, A
COMPUTING DEVICE, A COMPUTER
READABLE STORAGE MEDIUM, AND A
CLIENT COMPUTING DEVICE FOR
MODELLING THE ALIGNMENT OF AN
ORTHOPAEDIC IMPLANT FOR A JOINT OF
A PATIENT

(71) Applicant: **OPTIMIZED ORTHO PTY LTD**, Pymble (AU)

(72) Inventors: **Brad Peter Miles**, Walsh Bay (AU); **Peter Bede O'Connor**, Walsh Bay (AU); **Justin Roe**, Walsh Bay (AU); **Brett** 

Fritsch, Walsh Bay (AU); Len Walter, Walsh Bay (AU); Ed Marel, Walsh Bay (AU); Michael Solomon, Walsh Bay (AU); Brian Cheung, Mission Viego, CA (US); Milton Scott Bergeon, Mission Viejo, CA (US); James William Pierrepont, Cremorne (AU)

(73) Assignee: CORIN LIMITED, Circncester (GB)

(\*) Notice: Subject to any disclaimer, the term of this

patent is extended or adjusted under 35

U.S.C. 154(b) by 0 days.

(21) Appl. No.: 14/602,162

(22) Filed: Jan. 21, 2015

(65) **Prior Publication Data** 

US 2015/0227711 A1 Aug. 13, 2015

## Related U.S. Application Data

- (62) Division of application No. 14/000,858, filed as application No. PCT/AU2012/000179 on Feb. 24, 2012, now Pat. No. 8,983,813.
- (51) **Int. Cl.**

 G06F 17/50
 (2006.01)

 A61F 2/30
 (2006.01)

 G06F 19/00
 (2011.01)

(10) **Patent No.:** 

US 9,408,698 B2

(45) **Date of Patent:** 

Aug. 9, 2016

(52) U.S. Cl.

(Continued)

(58) Field of Classification Search

(56) References Cited

U.S. PATENT DOCUMENTS

8,983,813 B2 3/2015 Miles et al. 2005/0197814 A1 9/2005 Aram (Continued)

FOREIGN PATENT DOCUMENTS

WO 2010120990 A1 10/2010

OTHER PUBLICATIONS

Extended European Search Report from corresponding European Application No. 12749104.1, dated May 13, 2015, 6 pages.

(Continued)

Primary Examiner — Thai Phan (74) Attorney, Agent, or Firm — Innovation Capital Law Group, LLP; Vic Lin

## (57) ABSTRACT

The present disclosure relates to a method incorporating computer-implemented steps, a computing device, a computer readable storage medium, and a client computing device for modelling the alignment of an orthopedic implant for a joint of a patient. The method comprises the computer-implemented steps of being responsive to patient specific information data for deriving patient data, where the patient specific information data is indicative of one or more dynamic characteristics, and being responsive to the patient data for providing 3D model data of the joint, such that the 3D model data shows the orthopedic implant in an alignment configuration based on the patient specific information data.

## 37 Claims, 29 Drawing Sheets

